

07 APR 2005

(19) 世界知的所有權機關  
國際事務局



(43) 国際公開日  
2004 年 4 月 22 日 (22.04.2004)

**PCT**

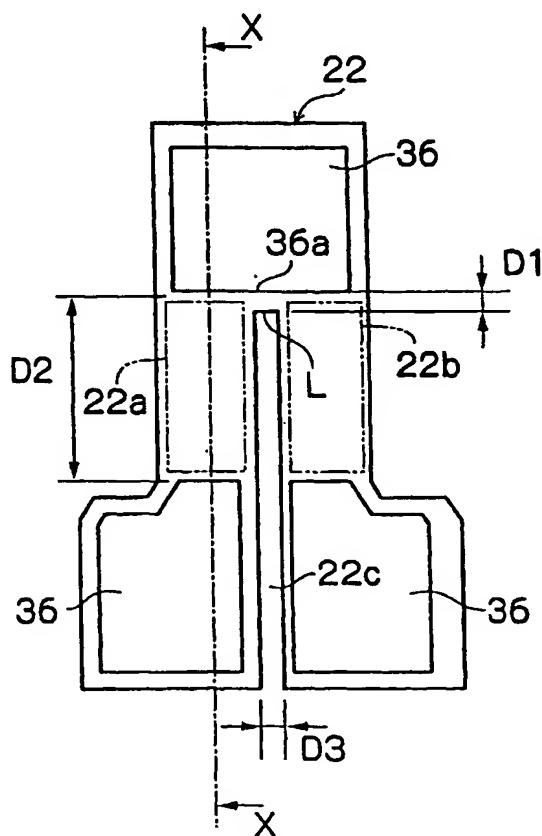
(10) 国際公開番号  
**WO 2004/033212 A1**

- |                             |  |   |
|-----------------------------|--|---|
| (51) 国際特許分類:                | B41J 2/01  | 北品川6丁目7番35号 ソニー株式会社内 Tokyo (JP). 冨田 学 (TOMITA,Manabu) [JP/JP]; 〒141-0001 東京都品川区 北品川6丁目7番35号 ソニー株式会社内 Tokyo (JP). 河野 稔 (KOHNO,Minoru) [JP/JP]; 〒141-0001 東京都品川区 北品川6丁目7番35号 ソニー株式会社内 Tokyo (JP). 宮本 孝章 (MIYAMOTO,Takaaki) [JP/JP]; 〒141-0001 東京都品川区 北品川6丁目7番35号 ソニー株式会社内 Tokyo (JP). |
| (21) 国際出願番号:                | PCT/JP2003/012905  |   |
| (22) 国際出願日:                 | 2003 年 10 月 8 日 (08.10.2003)   |   |
| (25) 国際出願の言語:               | 日本語  |   |
| (26) 国際公開の言語:               | 日本語  |   |
| (30) 優先権データ:                |  |   |
| 特願2002-295342               | 2002 年 10 月 8 日 (08.10.2002)   | JP  |
| (71) 出願人 (米国を除く全ての指定国について): | ソニー株式会社 (SONY CORPORATION) [JP/JP]; 〒141-0001 東京都品川区 北品川6丁目7番35号 Tokyo (JP). | (74) 代理人: 中村 友之 (NAKAMURA,Tomoyuki); 〒105-0001 東京都港区 虎ノ門1丁目2番3号 虎ノ門第一ビル9階 三好内外国特許事務所内 Tokyo (JP).   |
| (72) 発明者; および               |  | (81) 指定国 (国内): CN, KR, SG, US.  |
| (75) 発明者/出願人 (米国についてのみ):    | 江口 武夫 (EGUCHI,Takeo) [JP/JP]; 〒141-0001 東京都品川区                               | (84) 指定国 (広域): ヨーロッパ特許 (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).  |

〔統葉有〕

**(54) Title: LIQUID-DISCHARGING HEAD AND LIQUID-DISCHARGING DEVICE**

(54) 発明の名称: 液体吐出ヘッド及び液体吐出装置



**(57) Abstract:** In a liquid-discharging device, heat-generating elements (heat-generating portions) are formed from a single base substance without dividing it into pieces, which enables to control the discharge direction of a liquid. A liquid-discharging head has a heat energy-generating element (22) for generating heat energy by which a liquid is discharged. The heat energy-generating element (22) is formed from a single base substance that is not divided, and has substantially a winding shape in a plan view. At the turn portions of the substantially winding shape, conductors (electrodes) (36) are connected. This arrangement divides the heat energy-generating element (22) into main portions (22a, 22b) with the turn portions in between, and the main portions generate heat energy for causing the liquid to be discharged. On one heat energy-generating element (22) is one nozzle for discharging the liquid.

(57) 要約: 複数に分割することなく、単一の基体から複数の発熱素子(発熱部分)を形成し、これによって吐出方向を制御可能にする。液体を吐出するための熱エネルギーを発生させる熱エネルギー発生素子(22)を備える液体吐出ヘッドであって、熱エネルギー発生素子(22)は、分割されていない一つの基体からなるとともに、平面形状が略つづら折り状をなし、かつ略つづら折り状の折り返し部分に導体(電極)(36)が接続されることにより、略つづら折り状の折り返し部分を介して、液体を吐出するための熱エネルギーを発生させる主たる部分(22a、22b)に区分したものであり、一つのエネルギー発生素子(22)上に、液体を吐出させるための一つのノズルを備える。



添付公開書類:

— 国際調査報告書

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/JP03/12905

## A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl<sup>7</sup> B41J2/01

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
Int.Cl<sup>7</sup> B41J2/01

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2003
Kokai Jitsuyo Shinan Koho	1971-2003	Toroku Jitsuyo Shinan Koho	1994-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2002-240287 A (Sony Corp.), 28 August, 2002 (28.08.02), Full text; all drawings (Family: none)	1-18
Y	JP 59-207262 A (Hewlett-Packard Co.), 24 November, 1984 (24.11.84), Full text; all drawings & EP 124312 A	1-18
Y	JP 9-239983 A (Canon Inc.), 16 September, 1997 (16.09.97), Full text; all drawings (Family: none)	1-18

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search  
25 December, 2003 (25.12.03)

Date of mailing of the international search report  
20 January, 2004 (20.01.04)

Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/JP03/12905

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 55-132259 A (Canon Inc.), 14 October, 1980 (14.10.80), Full text; all drawings	1-18